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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/921,508	08/02/2001	Giovanni Cherubini	CH920010027US1	6084

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IBM CORPORATION  
INTELLECTUAL PROPERTY LAW DEPT.  
P.O. BOX 218  
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EXAMINER

KUMAR, PANKAJ

ART UNIT	PAPER NUMBER
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2631

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/921,508

Applicant(s)

CHERUBINI, GIOVANNI

Examiner

Pankaj Kumar

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19 and 20 is/are allowed.
- 6) ☒ Claim(s) 1-18, 21 and 22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 8/2/2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 2/17/2005 have been fully considered but they are not persuasive.
2. Applicant argues that Garrison is not directed to communicating information via subchannels of a communications channel since Garrison is sending RF signals to whatever antenna is tuned to receive the signals. This is not persuasive. Garrison teaches "power allocator per subband" in fig. 2A-1. Subband is equivalent to subchannel as band is equivalent to channel. Garrison has different modems for different subchannels and each modem transmits at its assigned subchannel based on the power allocation determined by the SNR. Hence Garrison is communicating information via subchannels of a communications channel. Having antennas tuned to the subchannels to receive the signals still means that Garrison transmits as specified above.
3. Applicant argues that their subsequent transmissions are multiplied by the gain factor while Garrison's subsequent transmissions are using the new gain factor. This is not persuasive since applicant has not claimed that their subsequent transmissions are multiplied by the gain factor.
4. Applicant argues that Garrison does not teach to determine power level at multiple subchannels since it determines the power level based on the SNR for a single user. This is not persuasive since Garrison's patent is showing that it is working on a number of cell phone 10 in fig. 1 and hence it is working on a number of users and hence a number of subchannels and a

Art Unit: 2631

part of the work it is does for each is the power level determination as shown such as in fig. 2a-1 with power need per subband per beam.

5. Applicant argues that Miseki does not teach that subchannels of channels are partitioned into low and high crosstalk channels. This is not persuasive since Miseki teaches in fig. 20 of noise, which is high crosstalk, and speech, which is low crosstalk and also teaches in fig. 17 with the subdivisions of the frequency or subchannels.

6. Applicant argues that examiner has confused signals having multiple signal components or multiple frequencies and communications transmission medium. This is not persuasive since applicant has not claimed such language.

7. Applicant argues that demultiplexing a signal into its components and then separately processing the signal components is not the same as selectively processing an input signal based on the subchannel characteristics. This is not persuasive since even though the reference teaches demultiplexing, the reference also teaches processing based on noise or speech. Applicant's argument is also not persuasive since applicant has not claimed selectively processing as argued.

### *Specification*

8. Applicant is reminded that the disclosure is objected to because of the following informalities: It is not clear what applicant means with optimization by annealing as applicant refers to reference 8 on page 26 to teach what this means and a copy of this reference is not provided. Also, a description of optimization by annealing in the specification would be helpful. It is currently assumed that optimizing by annealing means iterating in a stepwise manner through values in order to optimize a gain. Appropriate correction is required.

***Response to Amendment***

***Drawings***

9. The drawings are objected to because they are informal drawings. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2631

11. Claims 1-14, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garrison USPN 5,924,015 in view of Eto USPN 6,252,898. Here is how the references teach the claims:

12. As per claim 1: A method for communicating an information signal via one or more subchannels of a communications channel between a transmitting node and a receiving node of a data communications network, the method comprising the steps of: at the receiving node, determining for the or each subchannel, in dependence on the signal to noise ratio of the channel and a target transmission rate for the information signal, a gain factor to be applied to the subchannel signal at the transmitting node to effect transmission of the information signal to the receiving node (Garrison col. 12 second paragraph: "Beginning at user terminal 10, an RF signal is output by transmitter 8 along the return link RL which is received at receiver 9. An SNR test module 13 tests the signal-to-noise ratio of the incoming RF signal at receiver 9. The received SNR value is compared with the desired SNR value, and the difference therebetween is used to determine a new power setting command to be passed to the user terminal 10. The new power setting command identifies the power level at which the transmitter 8 must emit RF signals along return link RL to ensure that the satellite receives such RF signals with sufficient quality.") with minimum transmission power (Garrison col. 1 lines 46-53: "Different types of user terminals (portable, fixed, special, geographically specific, etc.) have associated minimum SNR levels required to afford a desired quality of service. Thus, each satellite must transmit RF signals in associated subbands at varying power levels to maintain the desired quality of service which depend upon the intended user terminal type. "); communicating the gain factor for the or each subchannel signal from the receiving node to the transmitting node and applying the gain factor to the corresponding subchannel signal at the transmitting node and transmitting the information

Art Unit: 2631

signal to the receiving node (Garrison col. 12 second paragraph: "The power setting commands are combined with an outgoing traffic signal within a multiplexor 7 and passed to the transmitter 11. The transmitter outputs the RF signal containing the power setting commands along the forward link FL to the terminal 10. A demultiplexor 3 separates the power level commands from the traffic signal and passes the power level commands to the transmitter 8. The transmitter 8 updates its output power based on the received level command.") (Garrison fig. 6).

13. What Garrison teaches is SNR changes the gain. What Garrison does not teach is that the transmission rate changes the gain. What Eto teaches is that the transmission rate changes the C/N (Eto col. 4 lines 50-64), which changes the SNR. Thus, it would have been obvious, to one of ordinary skill in the art, at time the invention was made, to arrive at the dependence on a target transmission rate to affect the gain as recited by the instant claims, because the combined teaching of Garrison with Eto suggests that changing the transmission rate changes the SNR which changes the gain as indicated by the instant claims. Furthermore, one of ordinary skill in the art, would have been motivated to combine the teachings of Garrison with Eto because Garrison suggests changing the gain based on SNR while Eto's teaching encompasses Garrison's SNR and suggests to change the SNR based on the transmission rate in the analogous art of adjusting signal strength.

14. Various limitations in the preamble, such as data communications network, recite the intended use of a structure and the body of claim does not depend on such limitations for completeness and the bodily limitations are able to stand alone of such limitations. Thus, such limitations in the preamble are not accorded patentable weight as the bodily limitations do not require such limitations as data communications network.

Art Unit: 2631

15. As per claim 2: A method as claimed in claim 1, wherein the determining step comprises the step of simulated annealing. (Eto col. 6 lines 34-38: reduce in a step wise manner based on C/N)

16. As per claim 3: A method as claimed in claim 1, wherein the applying step comprises the step of multiplying the or each subchannel signal by the corresponding gain factor. Garrison and Eto do not explicitly teach the limitations of multiplying the signal by the gain as recited by the instant independent claims. However, it is reasonable to presume that said multiplying the signal by the gain are well within the scope or encompassed by the teachings of the prior art because the presumption is supported by the use of similar materials (i.e. transmitter) and in the similar production steps (i.e. determining gain and transmitting signals) to produce signals with varying gains. The burden is upon the applicant to prove otherwise. *In re Fitzgerald*, 205 USPQ 594.

17. As per claim 4: A method as claimed in claim 1, and further comprising the step of modulating the or each subchannel signal onto a corresponding carrier signal. Garrison in view of Eto teach the method as claimed in claim 1. What Garrison in view of Eto does not teach is modulating a subchannel signal onto a carrier signal. However, it would have been obvious, to one of ordinary skill in the art, at time the invention was made, to modify the prior art teaching of Garrison in view of Eto with the teaching of modulating the or each subchannel signal onto a corresponding carrier signal as recited by the instant claims, because Garrison in view of Eto suggests carriers and modulation in the analogous art of transmitting signals.

18. As per claim 5: A method as claimed in claim 4, and wherein the applying step (Garrison col. 12 second paragraph: "The transmitter 8 updates its output power based on the received level command.") is performed prior to the modulating step (Garrison col. 12 second paragraph: "The



Art Unit: 2631

new power setting command identifies the power level at which the transmitter 8 must emit RF signals along return link RL to ensure that the satellite receives such RF signals with sufficient quality.”).

19. As per claims 6 to 12, the limitations are taught by Garrison in view of Eto as discussed above with respect to claims 1-5.

20. As per claim 13: A network as claimed in claim 8, wherein the communications channel comprises a plurality of subchannels (Garrison fig. 2a, 2b: “per subchannel”; “per sub band”).

21. As per claims 14, 21, the limitations are taught by Garrison in view of Eto as discussed above with respect to claims 1-5.

22. Claims 15, 17, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miseki USPN 6,427,135. Here is how the reference teach the claims:

23. As per claim 15: A method for compensating for cross talk in a multichannel communications link comprising a plurality of channels each having at least one sub channel between a transmitting node and a receiving node of a data communications network, the method comprising, in a receiving node, for the or each subchannel of each channel, the steps of: partitioning the subchannels (Miseki 6427135 fig. 17c has a number of groups of frequencies or subchannels) of the other channels into at least one high crosstalk subchannels (Miseki fig. 20: signal going to noise decoder has mostly noise) and at least one low crosstalk subchannels (Miseki fig. 20: signal going to speech decoder has mostly speech data); and, decoding the subchannel signal in dependence on the signal on the at least one or each high crosstalk subchannel signal (Miseki fig. 20: noise is being decoded in 290). What Meseki teaches is that

Art Unit: 2631

the noise has multiple channels or frequencies or subchannels (Meseki fig. 25a, 25b) but does not teach that the speech data has multiple channels or frequencies or subchannels. The office takes official notice that speech is composed of a range of frequencies and hence has multiple channels or subchannels. Thus, it would have been obvious, to one of ordinary skill in the art, at time the invention was made, to modify the prior art teaching of Miseki with the teaching of having subchannels for speech data i.e. low crosstalk subchannel as recited by the instant claims, because Miseki suggests speech data in the analogous art of decoding speech.

24. Various limitations in the preamble, such as multichannel communications link, recite the intended use of a structure and the body of claim does not depend on such limitations for completeness and the bodily limitations are able to stand alone of such limitations. Thus, such limitations in the preamble is not accorded patentable weight as the bodily limitations do not require such limitations as multichannel communications link.

25. As per claim 17, the limitations are discussed above with respect to claim 15.

26. As per claim 22, the limitations are discussed above with respect to claim 15.

27. Claims 16, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miseki USPN 6,427,135 as applied to claims 15 and 17 above, and further in view of Raman USPN 6,001,131. Here is how the references teach the claims:

28. As per claim 16: Mesiki teaches a method as claimed in claim 15, wherein the subchannels are partitioned into at least one high crosstalk subchannels and at least one low crosstalk subchannels. What Mesiki does not teach is the partition is dependent on a threshold crosstalk level. What Raman 6001131 teaches is that the partition is dependent on a threshold

Art Unit: 2631

crosstalk level (Raman col. 4 lines 30-35: "Speech/noise detector 130 is often designed such that its energy threshold amount separating speech from noise is continuously updated as actual signal frames are received, so that the threshold can more accurately predict the boundary between speech and non-speech in the actual signal frames being received from framing 120.")). Thus, it would have been obvious, to one of ordinary skill in the art, at time the invention was made, to arrive at the threshold crosstalk level as recited by the instant claims, because the combined teaching of Mesiki with Raman suggest partitioning into high crosstalk subchannels and low crosstalk subchannels in dependence on a threshold crosstalk level as recited by the instant claims. Furthermore, one of ordinary skill in the art, would have been motivated to combine the teachings of Mesiki with Raman because Mesiki suggests partitioning subchannels in general and Raman suggests the beneficial use of using a threshold to partition in the analogous art of separating data from noise.

29. As per claim 18, the limitations are discussed above with respect to claim 16.

***Allowable Subject Matter***

30. Claims 19, 20 are allowed. See prior action for details.

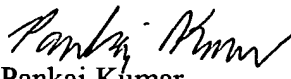
Art Unit: 2631

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pankaj Kumar whose telephone number is (571) 272-3011. The examiner can normally be reached on Mon, Tues, Thurs and Fri after 8AM to after 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Pankaj Kumar  
Patent Examiner  
Art Unit 2631

PK